

**ABSTRACT OF THE DISCLOSURE**

[0132] The invention includes inventive methods of treating a soot preform. One method includes heating a soot preform to a temperature of less than about 1000 °C and exposing the preform to a substantially halide free reducing agent. Preferred reducing agents include carbon monoxide and sulfur dioxide. Another inventive method of treating the preform includes exposing the preform, in a furnace, to a substantially non-chlorine containing atmosphere comprising carbon monoxide. The preform is heated to a temperature of at least about 1000°C. Preferably this method is incorporated into the process for making an optical fiber. An additional method of treating the preform includes doping the preform with fluorine and exposing the fluorine doped preform to a substantially chlorine free atmosphere comprising at least carbon monoxide at a temperature of at least 1100°C, thereby reacting excess oxygen present in the furnace.

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